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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,737	02/19/2002	Kenji Takao	1016-02	4935

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IP DEPARTMENT OF PIPER RUDNICK LLP
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EXAMINER

KALAFUT, STEPHEN J

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,737

Applicant(s)

TAKAO ET AL.

Examiner

Stephen J. Kalafut

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1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12 and 14-16 is/are allowed.
- 6) ☒ Claim(s) 1,3-6,13 and 17-21 is/are rejected.
- 7) ☒ Claim(s) 2 and 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Claims 3-6, 13 and 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims recite Ag, Si, Mn, V, Ti and Nb as components of the present steel, but would be inconsistent with the phrase in claims 1, 8 and 10, where the steel is recited as only having "iron and incidental impurities" other than C, N, Cr and Mo.

Would the elements in these dependent claims form "incidental impurities"?

Claims 3-6, 13 and 17-20 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. If the elements Ag, Si, Mn, V, Ti and Nb are not "incidental impurities", these claims would be outside the scope of parent claims 1, 8 and 10.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 5 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taruya *et al.* (Japanese patent no. 3,097,690, which corresponds to *kokai* no. 2000-294,256).

Taruya *et al.* disclose a polymer electrolyte fuel cell including a grooved separator (section 0007, figure 1). The separator is made of a stainless steel which includes carbon and

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nitrogen each in amounts not more than 0.018 weight percent (section 0024). The elements S, P, V, Ni and Cu may be present in amounts as small as zero, and would thus constitute incidental impurities (section 0023). The chromium content may range from 10.5 to 35 percent, thus falling into the presently claimed range. The present claims differ by reciting a range of molybdenum content ranging from 0.5 to 3.0 percent, falling within the broader range of Taruya *et al.*, which is zero to 6 percent (section 0023). Taruya *et al.* also teaches that Cr and Mo afford corrosion resistance, with Mo contained in lesser amounts than Cr (sections 0040 and 0041). If the Mo content is too high, brittleness may result, while its corrosion avoiding properties become less apparent at amounts below 0.5 percent (section 0041). Thus, Taruya *et al.* teach to optimize the amount of molybdenum, to provide corrosion resistance but to avoid brittleness. For this reason, it would be obvious to optimize the amount of molybdenum within the stainless steel fuel cell separator of Taruya *et al.* These claims would thus be obvious over Taruya *et al.* Since the amounts of the various components fall within or overlap the present ranges, the separator of Taruya *et al.* would inherently exhibit the same amount of contact resistance.

Claims 2 and 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The recited surface roughness and BA film on some of the projections are not disclosed by the prior art applied above or cited below.

Claims 8-12 and 14-16 are allowed. The process for making the present separator, including the steps of rolling, annealing and pickling, are not disclosed by the prior art.\

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Claims 6, 13 and 17-20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The elements recited in claim 6 are not disclosed by Taruya *et al.*, or seen as obviously added thereto. Claims 13 and 17-20 depend from allowable method claims 8 and 10.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fukui *et al.* (US 6,440,598) disclose a stainless steel fuel cell separator. Wilson *et al.* (US 4,796,946) disclose a corrugated stainless steel bar, which includes carbon, manganese and chromium. Blanchet *et al.* (US 2002/0197518) disclose a fuel cell current collector made of stainless steel.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 703-308-0433. The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 703-308-2383. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



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1700